

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously Presented) A radio cell station apparatus in a mobile communication system, signals received in said mobile communication system including already-known reference signals, comprising:

a search unit configured to search for a reference signal representing a unique identifier sent along an assigned radio frequency already used in a neighboring cell station;
a storage unit configured to store the reference signal detected by said search unit; and

a reference signal allocation unit configured to allocate, when a connection request is received from a terminal device, a reference signal different from the reference signal stored in said storage unit.

2. (Previously Presented) A radio cell station apparatus in a mobile communication system, signals received in said mobile communication system including already-known reference signals, comprising:

search means for searching for a reference signal sent along a radio frequency already used between a terminal device and a neighboring cell station by receiving in advance of a connection request received from the terminal device a communication signal communicated between said neighboring cell station and the terminal device communicating with said neighboring cell station, and analyzing a reference signal in use from the received communication signal; and

storage means for storing and holding said analyzed reference signal; and
reference signal allocation means for allocating, when a connection request is received from the terminal device, a reference signal different from the reference signal stored in said storage means.

3. (Previously Presented) The radio cell station apparatus according to claim 2, wherein

said search means searches for the reference signal used in said neighboring cell station for each traffic slot allocated to said terminal device.

4. (Previously Presented) A radio cell station apparatus in a mobile communication system, signals transmitted/received in said mobile communication system including already-known reference signals, comprising:

a storage unit for storing a plurality of reference signals different from each other representing unique identifiers sent along an assigned radio frequency; and

a reference signal allocation unit configured to randomly select, when a connection request is received from a terminal device, a reference signal from said storage unit based on a cell station number assigned to each cell station and configured to allocate the reference signal to said terminal device.

5. (Previously Presented) A radio cell station apparatus in a mobile communication system, signals transmitted/received in said mobile communication system including already-known reference signals, comprising:

storage means for storing a plurality of reference signals sent along a radio frequency different from each other, wherein a cell station number is assigned to each cell station; and

reference signal allocation means for, when a connection request is received from a terminal device at a cell station assigned a receiving cell station number, allocating an i -th reference signal corresponding to value i of a remainder of division of said receiving cell station number by total number m of reference signals stored in said storage means, where m is a natural number and i is a natural number of at most m .

6. (Previously Presented) A reference signal allocation method performed by a radio cell station apparatus in a mobile communication system, signals received in said mobile communication system including already-known reference signals, comprising the steps of:

searching by the radio cell station apparatus for a reference signal representing a unique identifier sent along an assigned radio frequency already used in a neighboring cell station;

storing by the radio cell station apparatus said reference signal detected; and

allocating by the radio cell station apparatus, when a connection request is received from a terminal device, a reference signal different from said reference signal stored.

7. (Original) The reference signal allocation method according to claim 6, further comprising the steps of:

before the connection request is received from said terminal device, receiving in advance a communication signal communicated between said neighboring cell station and a terminal device communicating with said neighboring cell station, and analyzing a reference signal in use from the received communication signal; and

storing said analyzed reference signal.

8. (Original) The reference signal allocation method according to claim 7, further comprising the step of searching for the reference signal used in said neighboring cell station for each traffic slot allocated to said terminal device.

9. (Previously Presented) A reference signal allocation method performed by a radio cell station apparatus in a mobile communication system, signals transmitted/received in said mobile communication system including already-known reference signals, comprising the steps of:

storing by the radio cell station apparatus a plurality of reference signals different from each other representing unique identifiers sent along an assigned radio frequency; and

randomly selecting by the radio cell station apparatus, when a connection request is received from a terminal device, a reference signal from said plurality of reference signals based on a cell station number assigned to each cell station and allocating the reference signal to said terminal device.

10. (Previously Presented) A reference signal allocation method

performed by a radio cell station apparatus in a mobile communication system, signals transmitted/received in said mobile communication system including already-known reference signals, comprising the steps of:

storing a plurality of reference signals sent along a radio frequency different from each other, wherein a cell station number is assigned to each cell station; and

allocating, when a connection request is received from a terminal device at a cell station assigned a receiving cell station number, an i -th reference signal corresponding to value i of a remainder of division of said receiving cell station number by total number m of said reference signals stored, where m is a natural number and i is a natural number of at most m .

11. (Previously Presented) A computer readable medium containing program code which, when executed, causes a radio cell station apparatus in a mobile communication system to execute a reference signal allocation method, signals received in said mobile communication system including already-known reference signals, comprising:

program code for searching for a reference signal representing a unique identifier sent along an assigned radio frequency already used in a neighboring cell station;

program code for storing said reference signal detected; and

program code for allocating, when a connection request is received from a terminal device, a reference signal different from said reference signal stored.

12. (Previously Presented) The computer readable medium according to claim 11 executed by the radio cell station apparatus in the mobile communication system, the execution of the method caused by executing the program code contained in the computer readable medium, said method further comprising the steps of:

before the connection request is received from said terminal device, receiving in advance a communication signal communicated between said neighboring cell station and a terminal device communicating with said neighboring cell station, and analyzing a reference signal in use from the received communication signal; and

storing said analyzed reference signal.

13. (Previously Presented) The computer readable medium according to claim 12 executed by the radio cell station apparatus in the mobile communication system, the execution of the method caused by executing the program code contained in the computer readable medium, said method further comprising the step of searching for the reference signal used in said neighboring cell station for each traffic slot allocated to said terminal device.

14. (Previously Presented) A computer readable medium containing program code which, when executed, causes a radio cell station apparatus in a mobile communication system to execute a reference signal allocation method, signals transmitted/received in said mobile communication system including already-known reference signals, comprising:

program code for storing a plurality of reference signals different from each other representing unique identifiers sent along an assigned radio frequency; and

program code for randomly selecting, when a connection request is received from a terminal device, a reference signal from said plurality of reference signals based on a cell station number assigned to each cell station and allocating the reference signal to said terminal device.

15. (Previously Presented) A computer readable medium containing program code which, when executed, causes a radio cell station apparatus in a mobile communication system to execute a reference signal allocation method, signals transmitted/received in said mobile communication system including already-known reference signals, comprising:

program code for storing a plurality of reference signals sent along a radio frequency different from each other, wherein a cell station number is assigned to each cell station; and

program code for allocating, when a connection request is received from a terminal device at a cell station assigned a receiving cell station number, an i -th reference signal corresponding to value i of a remainder of division of said receiving cell station number by total number m of said reference signals stored, where m is a natural number and i is a natural number of at most m .

16. (Previously Presented) The radio cell station apparatus of claim 3 wherein a reference signal is used for synchronization of communication within each traffic slot.

17. (Previously Presented) The reference signal allocation method of claim 8 wherein a reference signal is used for synchronization of communication within each traffic slot.

18. (Previously Presented) The computer readable medium according to claim 13 where a reference signal is used for synchronization of communication within each traffic slot.

19. (Previously Presented) A radio cell station apparatus in a mobile communication system, signals received in said mobile communication system including already-known reference signals, comprising:

a search unit configured to search for a reference signal sent along a radio frequency already used between a terminal device and a neighboring cell station by receiving in advance of a connection request received from the terminal device a communication signal communicated between said neighboring cell station and the terminal device communicating with said neighboring cell station, and configured to analyze a reference signal in use from the received communication signal; and

a storage unit configured to store and hold said analyzed reference signal; and

a reference signal allocation unit configured to allocate, when a connection request is received from the terminal device, a reference signal different from the reference signal stored in said storage unit.

20. (Previously Presented) The radio cell station apparatus according to claim 19, wherein

said search unit searches for the reference signal used in said neighboring cell station for each traffic slot allocated to said terminal device.

21. (Previously Presented) A radio cell station apparatus in a mobile communication system, signals transmitted/received in said mobile communication system including already-known reference signals, comprising:

a storage unit configured to store a plurality of reference signals sent along a radio frequency different from each other, wherein a cell station number is assigned to each cell station; and

a reference signal allocation unit configured to allocate, when a connection request is received from a terminal device at a cell station assigned a receiving cell station number, an i -th reference signal corresponding to value i of a remainder of division of said receiving cell station number by total number m of reference signals stored in said storage unit, where m is a natural number and i is a natural number of at most m .

22. (Previously Presented) The radio cell station apparatus according to claim 1, wherein a reference signal pattern used in each cell station is defined on condition that each signal communicated from said terminal device to said cell station can be separated and extracted in a stable manner.

23. (Previously Presented) The radio cell station apparatus according to claim 4, wherein a reference signal pattern used in each cell station is defined on condition that each signal communicated from said terminal device to said cell station can be separated and extracted in a stable manner.

24. (Previously Presented) The reference signal allocation method according to claim 6, wherein a reference signal pattern used in each cell station is defined on condition that each signal communicated from said terminal device to said cell station can be separated and extracted in a stable manner.

25. (Previously Presented) The reference signal allocation method according to claim 9, wherein a reference signal pattern used in each cell station is defined on condition that each signal communicated from said terminal device to said cell station can be separated and extracted in a stable manner.

26. (Previously Presented) The computer medium according to claim 11, wherein a reference signal pattern used in each cell station is defined on condition that each signal communicated from said terminal device to said cell station can be separated and extracted in a stable manner.

27. (Previously Presented) The computer medium according to claim 14, wherein a reference signal pattern used in each cell station is defined on condition that each signal communicated from said terminal device to said cell station can be separated and extracted in a stable manner.